



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Myong-Su Choe

Serial No.:

10/022,210

Examiner:

Olms, Douglas W

Filed:

20 December 2001

Art Unit:

2661

For:

APPARATUS AND METHOD FOR PERFORMING HIGH-SPEED ROUTING LOOKUP AND MANAGING ROUTING / FOR WARDING

TABLES

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents P.O.Box 1450 Alexandria, VA 22313-1450

Sir:

In accordance with 37 C.F.R. §1.56, and §§1.97 and 1.98 as amended, Applicant cites, describes, and provides copies of the following art references:

OTHER DOCUMENTS:

- Japanese Office Action in connection with Korean Patent Application No. 2001 7568, issued on 6 September 2005.
- IEEE INFORCOM' 01, Vol.3, pp1444-1453 to F. Ergun *et al.*, entitled *Scalable High Speed IP Routing Lookups*, published on April 2001.

DISCUSSION

As written in Japanese Office Action in applicant's corresponding Korean Patent Application No. 2001-7568 corresponding to applicant's above-captioned U.S. Patent Application, **F. Ergun et al. IEEE INFOCOM '01** discusses that Internet address lookup is a challenging problem because of increasing routing table sizes, increased traffic, higher speed links, and the migration to 128 bit IPv6 addresses. IP routing lookup requires computing the best matching prefix, for which standard solutions like hashing were believed to be inapplicable. The best existing solution we know of, BSD radix tries, scales badly as IP moves to 128 bit addresses. Our paper describes a new algorithm for best matching prefix using binary search on hash tables organized by prefix lengths. Our scheme scales very well as address and routing table sizes increase: independent of the table size, it requires a worst case time of Log₂ (address bits) hash lookups. Thus only 5 hash lookups are needed for IPv4 and 7 for IPv6. We also introduce Mutating Binary Search and other optimizations that, for a typical IPv4 backbone router with over 33,000 entries, considerably reduce the average number of hashes to less than 2, of which one hash can be simplified to an indexed array access. We expect similar average case behavior for IPv6.

PATENT P56293

Pursuant to 37 CFR § 1.97 (e)(1), that each item of information contained in the Information

Disclosure Statement was first cited in any communication from a foreign patent office in a

counterpart foreign patent application not more than (3) three months prior to the filing of the

Information Disclosure Statement.

The citation of the foregoing references is not intended to constitute an assertion that other

or more relevant art does not exist. Accordingly, the Examiner is requested to make a wide-ranging

and thorough search of the relevant art.

No fee is incurred by this Statement.

Respectfully submitted,

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I.D.: REB/hp

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FILING DATE

			U.S. PATENT DOCUMENTS				
EXAMINER	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE	
FOREIGN PATENT DOCUMENTS						TRANSLATION	
	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	YES	NO
	ОТНЕ	R DOCUME	NTS (Including Author, Title, Da	te, Pertinent Pa	ges, etc.)		
	Japanese Office Ac	tion in con	nection with Korean Patent A	pplication No.	. 2001-756	8, issued o	on 6
	September 2005.						
	IEEE INFORCOM'	01, Vol.3,	pp1444-1453 to F. Ergun et a	al., entitled Sca	alable High	h Speed II	P Routing
	Lookups, published	on April 2	001.				
EXAMINER:			DATE CONSIDERED:				